PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

10/088419

Applicant's or agent's file reference K 56 006 6ws	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT IPEA 416)
International application No. PCT/DE00/03464	International filing date (*day month year*) 28 September 2000 (28.09.00)	Priority date (*day month year*) 29 September 1999 (29.09.99)
International Patent Classification (IPC) or national classification and IPC B60R 16 02		
Applicant TYCO ELECTRONICS LOGISTICS AG		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and or drawings which have been amended and are the basis for this report and or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
03 April 2001 (03.04.01)	02 August 2001 (02.08.2001)
Name and mailing address of the IPEA/EP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/DE00/03464

I. Basis of the report

1 With regard to the **elements** of the international application:*

☐ the international application as originally filed

☒ the description:

pages 1-9 , as originally filed

pages _____ , filed with the demand

pages _____ , filed with the letter of _____

☒ the claims:

pages 1-15 , as originally filed

pages _____ , as amended (together with any statement under Article 19

pages _____ , filed with the demand

pages _____ , filed with the letter of _____

☒ the drawings:

pages 1/3-3/3 , as originally filed

pages _____ , filed with the demand

pages _____ , filed with the letter of _____

☐ the sequence listing part of the description:

pages _____ , as originally filed

pages _____ , filed with the demand

pages _____ , filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

V. **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-15	YES
	Claims		NO
Inventive step (IS)	Claims	1-15	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims		NO

2. Citations and explanations

2.1 Method Claims 1-9

2.1.1 Novelty of independent Claim 1

DE-A1-197 19 919 (D1), which is considered the closest prior art, shows in the figures and describes in column 2, lines 24-53,

- a circuit arrangement for securely coupling an external power supply (booster battery) to a vehicle electrical system (14), in which circuit arrangement a switching unit (15, 17) with a controllable switch (17) is arranged between the operating voltage network (electrical system (14)) and a connecting terminal (battery terminal (11) to which the booster battery is to be connected), the switching unit (15, 17) is connected to a controller (2) and the connecting terminal (11) is designed for connection to the external power supply (observation: since in general it has adequate dimensions for that purpose, or is at least suitable therefor). The following control measures are applied to control the connection process:
  - the voltage applied to the connecting terminal is

measured (in relation to the negative pole (12) of the battery (10) or ground);
- the measured value is compared with a voltage value;
- the switching unit (15, 17) is driven on the basis of the comparison result.

The subject matter of the present Claim 1 differs from the above in that the method starts with the following additional step or in that the subsequent steps are implemented differently, as follows:
- a pulsed voltage is generated at the connecting terminal at least when the switch or switches are open;
- the voltage applied to the connecting terminal is measured in the intervals between pulses;
- the measured values are compared with the voltage(s) of the operating voltage network;
- the switching unit is driven on the basis of the comparison result.

Consequently, the present application meets the requirement of PCT Article 33(2) because the subject matter of the only independent Claim 1 is novel over the prior art as defined in the Regulations (PCT Rule 64.1 - 64.3).

2.1.2 Inventive step of the subject matter of Claim 1

Proceeding from the above prior art, the present invention can therefore be considered to address the problem of devising a method for securely coupling an external power supply to an operating voltage network which avoids stresses to the two networks during hook-up and enables each of the two networks to adapt, whenever required, to the voltage conditions in the other network.

However, the solution according to Claim 1 does not appear to be known *per se* from any of the documents in the proceedings or to be suggested by the overall prior art.

Although document US-4 609 829 also addresses the problem of adaptation to voltage conditions, it concerns an entirely different subject in which the "network" (in the form of a plug-in card) being hooked-up does not have its own power supply; in addition, a separate plug-in unit is required.

Consequently, the present application appears to meet the requirement of PCT Article 33(3) because the subject matter of Claim 1 appears to involve an inventive step (PCT Rule 65.1, 65.2).

2.1.3 Industrial applicability of the subject matter of Claim 1

The subject matter of Claim 1 also appears to meet the requirements of PCT Article 33(4) because it can be implemented or produced and used at least in the field of automobile engineering.

2.1.4 Claims 2-9 (dependent on Claim 1)

Dependent Claims 2-9, which concern further configurations of the invention as per Claim 1, also appear to meet the requirements of PCT Article 33(2)-(4).

2.2 Claims 10-15, which are directed to a circuit arrangement

Claims 10-15, which refer back to methods as per one of the Claims 1-9, likewise meet the requirements of PCT

Article 33(2)-(4), especially since none of the available prior art arrangements appears to be suitable for implementing the method steps, in particular for generating a pulsed voltage and for measuring voltages in the intervals between pulses.